

NETTALON SECURITY SYSTEMS, INC.

Virtual Command Demonstration



*NetTalon is the future of
intelligent incident
management ...*

*NetTalon is not just another
alarm system.*

*Virtual Command
Demonstration Results*

*Baton Rouge, LA
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The week of October 16, 2006, the Baton Rouge Fire Department conducted a week long training activity to test the efficacy of Virtual Command Technology when responding to a fire incident. This was the first test of the technology by a City Fire department.

The technology introduced three operational objectives. (1) It networks the protected facility to 911 Fire Dispatch for instant notification and a virtual look inside the building to validate an actual incident. (2) It allows Fire officers to virtually view the fire in a building from mobile data computers while en route to the incident. (3) On the fire-ground, it provides the Fire-ground Commander at his command vehicle a continuous view of the fire's behavior enabling a precise deployment of engine companies during attack, rescue and ventilation operations.

The comparison effort involved A and B shifts for four engine companies, an aerial company and the District Chiefs assigned to those shifts. Each shift participated in four exercises, two using Virtual Command and two without. These were comparative exercises where the building was either protected by sprinklers or was without protection. The fire and suppression conditions were simulated in a very realistic manner and received high marks from the Baton Rouge FD for the fidelity of the simulation. Exercise scenarios were planned for a fire that affected a single floor; there were no multiple floor scenarios. All exercise scenarios were different providing each shift with four different fire incidents.

The State Administrator for Planning and Control provided the A. Z. Young building for the comparative evaluation. The A. Z. Young building, a 250,000 sq. ft., five-story structure with an operational fire code compliant system was vacated and scheduled for implosion. The control panel communicated an alarm to a Central Station that reported to 911. A NetTalon System 3000 was installed in September using an array of smoke detectors and temperature sensors. The control panel was networked to 911 Fire dispatch and the State Facilities administration. Remote viewing software and Sprint PCS, wireless software, were loaded on the Chief's laptop at Fire department headquarters.

The District Chief's Command vehicle, the fire apparatus and aerial all had mobile data computers with the same remote viewing package. All vehicles were staged one mile north of the A. Z. Young building and were released after dispatch in accordance with their actual run times to that building. The scenarios were unknown to the participants and the crews were intact throughout the exercise. Performance data was collected across a number of measures that corresponded to effectiveness on the fire ground. Data collection activities were performed by personnel from the State Fire Marshal's Office and the City of Baker Fire Department. The results of the test are provided in the next section. The reader may refer to the full report for a more detailed understanding of test setup, data collection, results and statistical analysis.

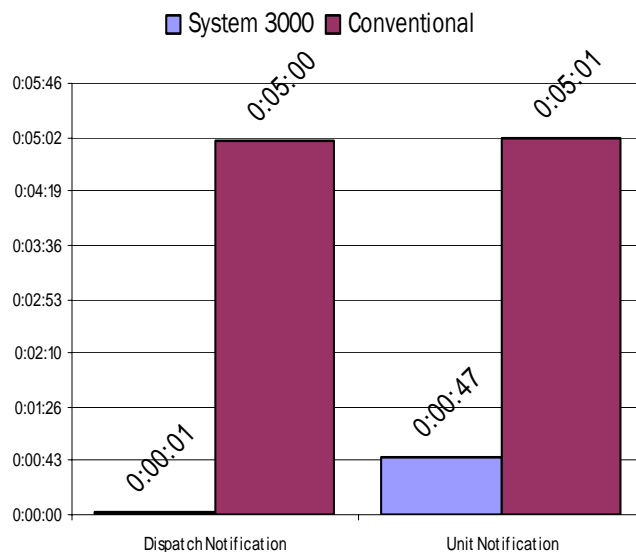
Notification of Alarm - The networking of the A. Z. Young building to 911 Fire Dispatch resulted in a notification time of alarm in one second from the initial alarm and enabled validation of an actual incident in less than a minute. The dispatch operator spent a short time observing the graphic display for further indications of fire development (e.g., temperature sensor in warning, then in alarm, smoke detector in alarm) that enabled a validation of an actual fire incident.

The conventional panel notification to central station and its notification to 911 typically took in excess of five (5) minutes; however 5 minutes was used in these exercises. This is five (5) minutes from time the first detector in the building goes into an alarm condition. This speed of notification and validation from the first alarm made a dramatic change in the response timeline to the fireground. Using Virtual Command units were dispatched within one minute of the first alarm condition. Units were arriving on the fire-ground before the conventional panel alarm was received at 911. The District Chief was viewing the fire within seconds of dispatch notification and requesting additional manpower prior to arriving on the fire-ground.

Important Points

1. The seconds the operator spends observing the graphic display for fire development has a significant impact on the type and speed of response.
 - Responding units know they are responding to an actual incident. There is a high sense of urgency as they prepare accordingly.
 - Manpower can be rolled as soon as the District Chief is observing the fire; about 40 seconds. A simultaneous movement of men and equipment are on the move less than two (2) minutes into the incident.
 - If fire development does not occur after the first alarm a single engine can be dispatched to investigate. This amounts to a huge resource savings and keeps units in position for an actual incident. It saves on wear and tear of equipment and the fire fighters both physically and mentally.
2. The ability to dispatch within a minute of the initial alarm puts the responding firefighters on the fire-ground very early in the fire development. The early notification provides a significant opportunity to mitigate a small fire and tremendously reduce property damage.

Dispatch/Notification Mean Response Times

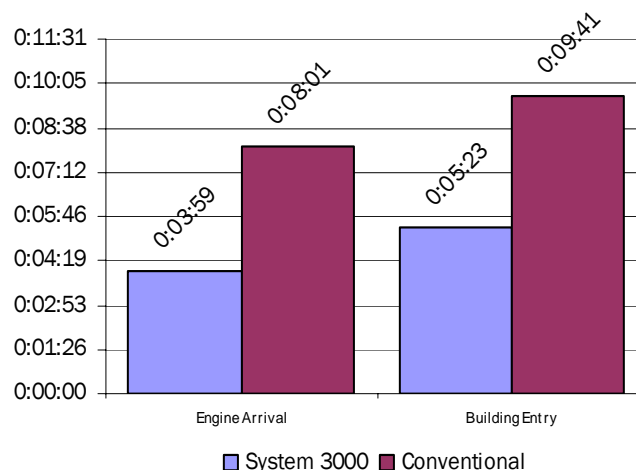


Engine Arrival and Building Entry - These bar charts reflect the faster response of VCT, putting firefighters on the scene very early in the incident. The times indicated are from the time of the first alarm—first indication of a developing fire. The time comparison as shown here reflects a much faster operational tempo with units arriving on the fireground within four (4) minutes of the control panel going into an alarm condition and already knowing the fire’s location on arrival.

Important Points

1. Using VCT the first captain in knew precisely the fire’s location (e.g., A side 2nd floor room 223) positioning his engine at the appropriate stairwell and moving his crew directly to the fire as he arrives.
2. The first engine in is on the fireground only four (4) minutes into the fire’s development. The first crew is in the stairwell for the best approach to the fire in a little over five (5) minutes.
3. Comparatively, the conventional notification time puts the first crew in the building at nine (9) minutes without knowing where the fire is.
4. A fire can double every minute; with VCT the first engine in is facing a fire with five (5) minutes of growth; without VCT the fire is at nine (9) minutes growth and the crew has to find the fire.

Engine Arrival and Building Entry Mean Response Times

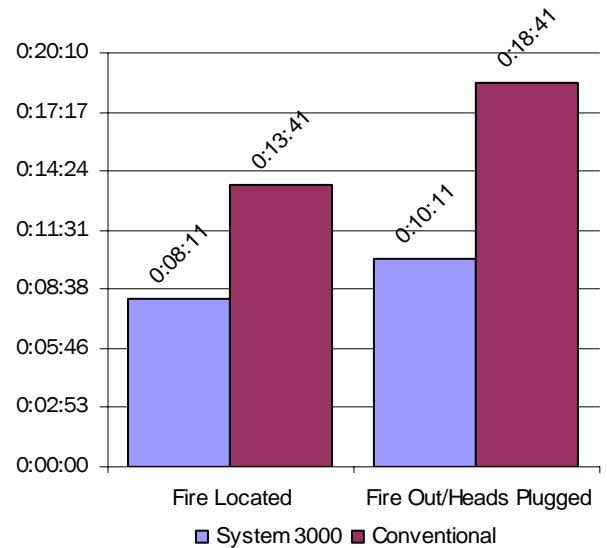


Fire Located and Fire Out - The results below show the advantages of early arrival and knowing the fire's location before arrival. The crew using VCT went directly to the fire while without VCT the first crew had to investigate the fire floor. From building entry, the physical movement of firefighters to the fire-floor in their bunker gear, tools, lines, etc. and masking before entering the fire floor and connecting the 1 1/2 inch line typically consumed two (2) minutes. The remaining time involved locating the fire and being in position to put it out. Depending on the fire growth time line the first crew in could experience a fire with numerous extensions and having a certain path of travel so the degree of difficulty locating the fire had a direct correlation to the growth time line and fire spread.

Important Points

1. Using VCT, the first Engine Company knew the location of the fire as it entered the building and encountered a fire much smaller than in the conventional response.
2. From the time the fire floor was entered the crews with VCT physically found the fire in less than 50 seconds while without VCT it took four (4) minutes. Once a fire becomes a working fire it has the potential to double every minute. Given this potential, the magnitude of the fire size in this time frame differential can be quickly understood.
3. Quickly locating the fire and fighting a smaller fire has a tremendous impact on firefighter safety, e.g., reduced flashover potential, less time on the fire-floor decreasing the possibility of running out of air.
4. Using VCT, the first engine company in attacked a fire with a much smaller area of involvement and were able to indicate fire knocked down in a mean time of two (2) minutes while without VCT the mean time was five (5) minutes.
5. Using VCT the incident was essentially over in ten (10) minutes from the time the building went into alarm and without it the time was eighteen (18) minutes.

Fire Located & Fire Out Mean Response Times



Victim Rescue - Victim rescue is the most important mission firefighters have after their own safety. Virtual Command Technology provided firefighters a significant capability to rescue victims through the introduction of “Areas of Refuge” that had methods for signaling firefighters victim location. These rooms were equipped with IP cameras that could be viewed remotely to verify victims were staying in the “Areas of Refuge”. The Duress Button in the “Areas of Refuge” pinpointed the location of the occupied rooms on the graphic display and a flashing strobe identified the room on the smoke filled fire floor.

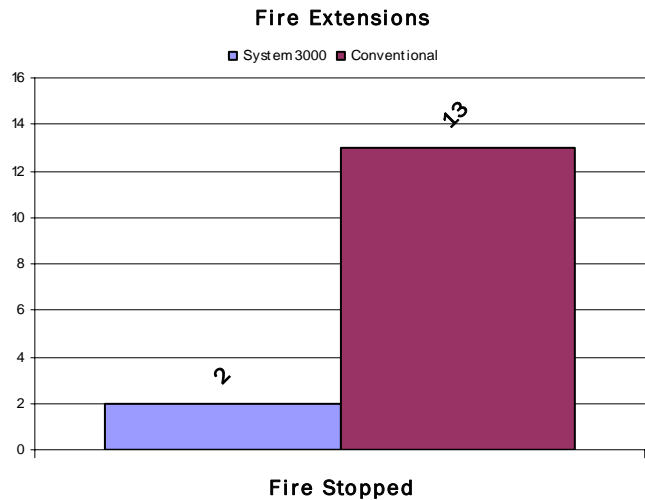
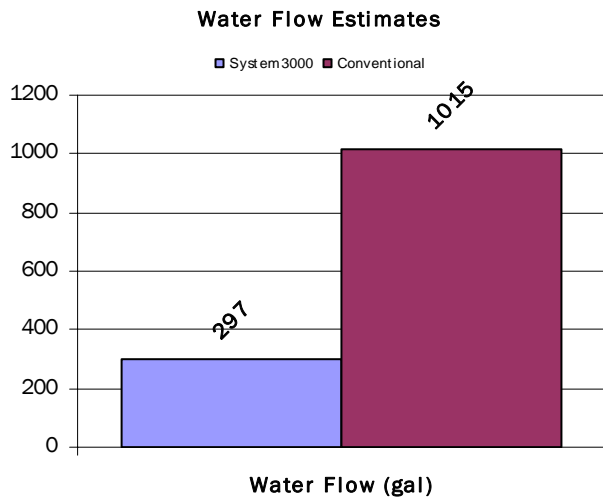
Victims in the conventional exercises called 911 to identify they were trapped by a fire and what floor they were on. Firefighters had to depend on a room by room primary search on the fire floor to look for the victims who had placed the emergency call.

Important points

1. The “Areas of Refuge” made a huge difference in reducing the time trapped victims could be located.
2. Using VCT, firefighters rescued victims in nine (9) minutes from the time of the initial alarm.
3. Without VCT, victims were not located until nineteen (19) minutes into the exercise.
4. “Areas of Refuge” dramatically improve a victim's chance for successful rescue.

Victim Rescure Mean Reponse Times





Property loss Reduction - Units equipped with VCT realized a substantial reduction in property loss in the comparable exercises. The mean time of ten (10) minutes to knock down the fire and plug the sprinkler heads versus eighteen (18) minutes without the technology resulted in a substantial reduction in water flow from suppression system exercises and in non sprinkled exercises there was a dramatic difference in fire extension from the point of origin.

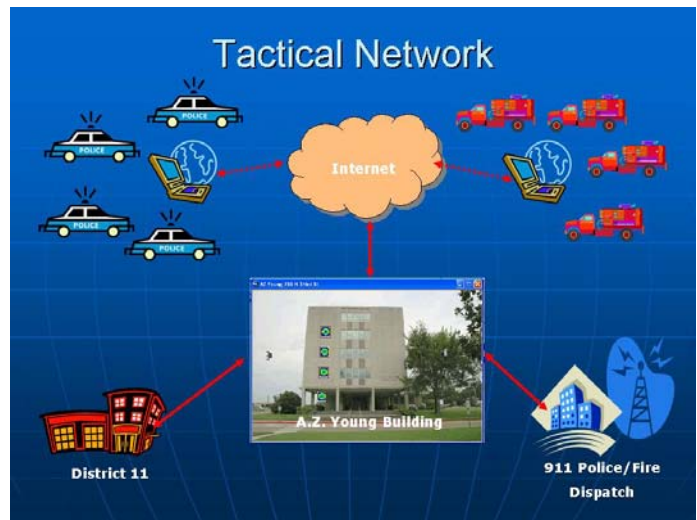
Important points

1. The rapid tempo of the response and the early situational awareness allowed firefighters to reduce property loss to a level never anticipated.
2. The loss reduction data from these exercises is very significant when one considers this was the participating crews' first use of this technology.
3. Using VCT, the crews reduced water flow by 71% in the suppression exercises.
4. In the set of comparable non sprinkled exercises A Shift stopped the fire with two (2) extensions using VCT and without the technology the fire was stopped after thirteen (13) extensions.
5. The data makes the argument that a building protected by VCT is much safer from a fire incident. It suggest that a fire department equipped to respond with VCT can mitigate quickly and with a substantial reduction in property loss over conventional suppression systems in the building.

Baton Rouge Graphics



VCT Data Available on Route to Fireground



VCT Tactical Network